UNITED STATES PATENT AND TRADEMARK OFFICE

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09/711,156	11/13/2000	James M. Clark	0918.0042C	6770

		EXAMINER
7590	05/05/2004	CHANG, EDITH M

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO 90C (Rev 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>17 February 2004</u>.

2a) ☐ This action is **FINAL.**   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-21* is/are pending in the application.

　　4a) Of the above claim(s) *13-15* is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-8,10,12,16,17,20 and 21* is/are rejected.

7) ☐ Claim(s) *9,11,18 and 19* is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *13 November 2000* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a) ☐ All　b) ☐ Some * c) ☐ None of:

　　　1. ☐ Certified copies of the priority documents have been received.

　　　2. ☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
　　Paper No(s)/Mail Date *3,7*.

4) ☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1.   Claims 9-11 are objected to because of the following informalities:

Claim 9, line 6, "the portion of the correlation signal" is suggested to be changed to "a

portion of the correlation signal"; lines 8-9, "the delayed portion of the correlation signal" is

suggested to be changed to "a delayed portion of the correlation signal"

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

3.   Claim 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention.

Claim 10, lines 8-9, "the delayed combined signal" lacks antecedent.

Claim Rejections - 35 USC § 102

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
> in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
> patent by another filed in the United States before the invention by the applicant for patent, except that an
> international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this
> subsection of an application filed in the United States only if the international application designated the United
> States and was published under Article 21(2) of such treaty in the English language.

4.   Claims 16, 17, 20 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by

Terashima (US 6385232 B1).

Regarding **claims 16 & 21**, Terashima discloses a method for detecting a code

comprising: correlating (Abstract, 11-14 FIG.3) a received signal (S10 FIG.3) and a plurality of

reference codes (12 & 15 FIG.3 wherein code generators generate a plurality of reference codes)

thereby generating a plurality of correlation signals (11-13, 17 FIG.3, column 3 lines 28-35);

combining the plurality of correlation signals based on the dither pattern which is a stationary

ditch pattern and producing a final combined correlation signal (S13, S15, S19 FIG.3, FIG.2A

where the long code is generated by using the common short code shown in the FIG.2A is the

stationary pattern); detecting the composite code based on the final combined correlation signal

(18 & 19 FIG.3, column 3 lines 35-50).

Regarding **claim 17**, Terashima discloses generating a plurality of combined correlation

signals (13 FIG.3, column 3 lines 35-39); and arranging the plurality of combined correlation

signals in order of the strength of the combined correlation signals (13-14 FIG.3, column 3 lines

28-lines 50, wherein the plurality of correlation signals stored in the memory and the maximum

correlation detection picking the largest one that the algorithm of maximum detection provides

arranging the plurality of combined correlation signals in order of the strength).

Regarding **claim 20**, Terashima discloses comparing the final combined correlation

signal with previously generated final combined correlation signals; selecting based on the

comparisons the combined correlation signal having the strongest correlation value (FIG.2,

FIG.3, column 3 lines 28-lines 50 wherein the maximum correlation detection comparing the

final combined correlation signal with previously generated final combined correlation signals

and selecting the correlation signal with strongest correlation value associated the pattern/timing

of FIG.2); and detecting the composite code by determining the phase of the long code based on

a receive time of the selected combined correlation signal (FIG 2A, 2B, S12 FIG.3, column 3

lines 35-lines 50 wherein the timing/phase of the long code is obtained).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

6.   Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abaunza

(US 5271034) in view of Cahn et al. (US 5535278).

Regarding **claim 1**, except explicitly specify the long code generation, Abaunza discloses

a method of detecting a transmission code from a received signal, the transmission code being

composed of a plurality of dithered codes (FIG.3, FIG.4), comprising: detecting the plurality of

dithered codes (FIG.3, column 1 lines 32-44 wherein detecting the plurality of dithered codes

transmitted by the satellites). However Cahn et al. teaches the long code (P code) is generated

from the 10.23 MHz clock (20 FIG.1, column 10 lines 43-47). As Abaunza using the 10.23 MHz

clock in the code generator of GPS receiver to generate Gold Code (FIG.4) comprising P code

and C/A code (column 1 lines 32-44), at the time of the invention, it would have been obvious to

a person of ordinary skill in the art to have the long code generation taught by Cahn et al. in

Abaunza's code generator to provide the P code for GPS receiver to enhance the accuracy and

speed of signal processing by GPS receivers with an encrypted P-code sequence (column 9 lines

10-15).

Regarding **claim 5**, Abaunza discloses the dithered codes are dithered according to a

stationary dither pattern (60 FIG.4; column 8 lines 43-46, column 9 lines 25-30, lines 60-65;

where the Gold Code is generated according to the ditcher pattern that is stored and controlled by

50, 54 and 60 FIG.4).

7.   Claims 2-4, 6-8, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Abaunza (US 5271034) in view of Cahn et al. (US 5535278) as applied to claim 1 above, and

further in view of Terashima (US 6385232 B1).

Regarding **claim 2**, Abaunza does not explicitly specify the details of detecting/

correlating signal, however Terashima teaches the detection of long code/short code (FIG.3,

FIG.14, where the generating a detection signal S60 FIG.14, and combining the detection signals

84-85 FIG.14). As Abaunza detecting for the dither codes (FIG.3 & FIG.4, column 7 lines 48-63

where describes the bit correlation of the received spread spectrum signals with the codes

generated by 30 FIG.3/FIG.4 including the dither codes which are composed the P code), at the

time of the invention, it would have been obvious to a person of ordinary skill in the art to have

the detecting/correlating taught by Terashima in Abaunza's receiver to provide a accurate and

more efficient synchronization detection (column 6 lines 19-22). The combined/modified method

provides the details of the basic detecting/correlating of the transmitted code being composed of

a plurality of dithered codes, and improves the detection/correlating. The

combination/modification obtains the invention as specified in the claim.

Regarding **claim 3**, further Terashima teaches the detecting of the plurality of dithered

codes (FIG.14, column 16 lines 5-18) being performed by correlating the received signal (S10,

82 FIG.14) with a plurality of reference codes (83 FIG.14) and generating a plurality of

correlation sums (S64 FIG.14), each of the reference codes formed by delaying a reference code

by a predetermined amount (FIG.7 show the reference codes CSC/LC formed by delaying a

reference code by a predetermined amount T1 '232, 60 FIG.4 '034 shows the reference codes

formed by delaying a reference code by a predetermined amount –0/+97ns dither).

Regarding **claim 4**, further Terashima teaches the transmission code being composed of

M dithered codes (FIG.7 A & B, M is 3), and M correlation sums generated (84 FIG.14),

summing the M correlation sums to generate a present final sum (CORRELATION VALUE

S30/output of matched filter FIG.7, 84-85 FIG.14), and the detecting of the long code being

performed by determining a largest final sum from among the present final sum and a plurality of

previously generated final sums and associating a time of the largest final sum (column 16 lines

5-42 wherein by determining a largest final sum from among the present final sum/the third CSC

and a plurality of previously generated final sums/in LATCH 84 FIG.14, and associating a time

of the largest final sum in FIG.7A the timing of the long code determined).

Regarding **claims 6 & 12**, excepting detecting the long code based on the combined

portions of the correlation signal, Abaunza's discloses a dither code detector (FIG.2, FIG.3)

comprising: a correlator unit (27-42 FIG.3) correlating the coded signal with a reference code

(I/Q FIG.1 is the coded signal with a reference code) and outputting a correlation signal; a

detector (100 FIG.5, column 14 lines 10-15 where 104 detects the matches from the correlation

signals I'/Q') combining portions of the correlation signal (I'/Q') according to the ditcher pattern

(column 9 lines 33-53, lines 60-64, wherein the ditcher pattern is a stationary ditcher pattern). However further Terashima teaches detecting the long code based on the combined portions of the correlation signal (FIG.7, column 16 lines 5-42). As Abaunza detecting for the dither codes (FIG.3 & FIG.4, column 7 lines 48-63 where describes the bit correlation of the received spread spectrum signals with the codes generated by 30 FIG.3/FIG.4 including the dither codes which are composed the P code), at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the detecting/correlating as cited in the claim taught by Terashima in Abaunza's receiver to provide a accurate and more efficient synchronization detection of long code (column 6 lines 19-22).

Regarding **claim 7**, Abaunza discloses a processing unit coupled to the detector (column 8 lines 32-45, 100 FIG.5/200 FIG.6) and processing the detected long code to determine timing information from the received coded signal (F_{CEST} FIG.5 to 58 FIG.4 to determining the timing, column 14 lines 19-27, lines 55-68 where the timing information determined).

Regarding **claim 8**, further Terashima teaches a delay unit (84 FIG.14) receiving the correlation signal (S60 FIG.14) and delaying it according to the dither pattern (S63 FIG.14) and outputting delayed correlation signals (86 FIG.14); and a combiner (85 FIG.14) receiving the correlation signal and combining it with the delayed correlation signals and outputting a combined correlation signal (S64 FIG.14).

Allowable Subject Matter

8.   Claims 11, 18, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9.   Claim 9 is objected to informality, but would be allowable if rewritten to overcome the objections.

Double Patenting

10.   The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).
     A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).
     Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11.   Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 09/711,155. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claim 1 of current application has broader claim that comprising the claim of copending Application No. 09/711,155.

This is a <u>provisional</u> obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

12.   Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 09/711,179. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claim 1 of current application has broader claim comprising the claim of copending Application No. 09/711,179.

This is a <u>provisional</u> obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

13.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M Chang whose telephone number is 703-305-3416. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
April 22, 2004

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